United States Department of the Interior

U.S. GEOLOGICAL SURVEY, Office of Acquisition and Grants
Reston, VA 20192

JUSTIFICATION & APPROVAL FOR OTHER THAN FULL & OPEN COMPETITION (FAR 6.-302-1)

1. Contracting Agency and Activity. The Department of the Interior, United States Geological Survey Office of Acquisition and Grants - Reston plans to contract on a sole source basis. This document sets forth the justification and approval as required by FAR 6.302-1.

2. Nature of Action Being Approved. The U.S. Geological Survey (USGS) Water Mission Area, Hydrologic Instrumentation Facility (HIF) requests an award of a non-competitive indefinite delivery, indefinite quantity (IID/IQ) contract to Teledyne Instruments for hydrologic instruments, equipment, and repairs. The HIF supports collection of hydrologic data throughout the USGS by evaluating, procuring, and quality-assuring a wide variety of specialized instruments and equipment. USGS hydrologic data is collected, maintained, and interpreted by USGS State Water Science Centers throughout the United States and its territories. In aggregate, these Water Science Centers operate networks of over 7,500 continuous record stream gages, 10,000 ground water level monitoring stations, and 2,500 water quality stations. Data collected from these monitoring sites are widely used by resource managers, regulators, scientists, engineers, consultants, and the general public to effectively and responsibly use and manage the nation's water resources. All data are collected using standard techniques and methodologies, are subjected to rigorous quality assurance checks, and are maintained in a national database containing records that date back to the late 19th century. These data are publicly available via the internet, and are extremely valuable because they can be directly compared across broad spatial and temporal scales. Because of the high quality of the data, they are almost universally accepted as the best available information by all parties in matters such as legal proceedings, compact disputes among sovereign entities, and scientific investigations by outside parties. The HIF contributes to the overall quality of these data by procuring and supplying instruments and equipment to Water Science Centers across the U.S. HIF ensures that the instruments and equipment meet any applicable USGS specifications, and performs quality assurance testing on the instruments and equipment. WSC's that obtain instruments and equipment from the HIF are assured that the instruments and equipment will provide reliable, high-quality data.

In order to effectively and efficiently accomplish its mission, the HIF requests an IDIQ contract with a period of performance of five years beginning in 2017 and ending in 2022.

3. Description of Supplies or Services. This request is for (1) Acoustic Doppler Current Profilers (ADCP's), and associated accessories (GPS, software, etc.) used to measure discharge and stream velocity in a variety of environmental settings, and (2) small floatation devices, that are used to deploy the ADCP's. Repair and maintenance services for the proposed equipment and instruments are also requested. The proposed supplier is **Teledyne Instruments (including Teledyne RD Instruments and Teledyne Oceanscience)**; this company's equipment is widely used across the USGS because of its combination of reliability, field ruggedness, ability to meet applicable USGS accuracy specifications, and interoperability with existing monitoring network infrastructure. ADCPs have completely changed the way that USGS measures discharge at its network of streamgaging stations by ushering in new levels of accuracy and much more detailed cross sectional information about velocity distributions. ADCP's are significantly more complex and expensive than the mechanical current meters they have replaced, and they require a unique set of skills and ancillary equipment in order to be successfully deployed and

operated, ADCP's represent a substantial investment for USGS WSC's and it is expected that they will continue to be purchased and employed in even greater numbers for the foreseeable future.

In addition, the company provides a number of floatation devices that interface with virtually all of the ADCP models that are in use across the USGS. These include both "first generation" ADCP's as well as recent models that employ advanced technology and were developed in consultation with the USGS. Use of this equipment allows latitude to deploy different ADCP's in multiple configurations necessary to successfully apply this technology to a wide range of hydrologic conditions. In addition to expanding the range of velocities and turbulences where successful discharge measurements can be made, the equipment allows for multiple communication interfaces (via cables and wireless) as well as several options for interfacing to GPS which allows the ADCP's to overcome measurement problems associated with moving streambeds. This equipment uniquely leverages existing ADCP investments by allowing ADCP's to be used in a larger number of hydrologic conditions and settings.

4. Estimated Dollar Value. The estimated dollar value is based on a minimum of $50,000 and a maximum of $8,200,000 spread over all years.

5. Statutory Authority. The proposed action may be awarded on a sole source basis under the authority outlined in FAR 6.302-1.

6. Rationale Supporting Use of Citation in No. 5. All equipment and instruments that will be procured and repaired with this contract are commercial items. These items are essential components of the USGS national stream gaging network described in section 2. This network, and the data it produces, is a major element of the overall mission of the USGS. The equipment and instruments required for the operation of this network are highly specialized and must meet rigorous requirements for accuracy, operation in demanding field conditions, and interoperability with existing network infrastructure. These instruments and equipment are essential to the effective operation of the network and are also needed to add new stations as programs evolve. In every sense of the term this network is a major system that represents a major investment of resources through time by the agency.

It is likely that an award to another source would result in substantial duplication of cost that would not be made up from any savings associated with competition. As an example, taking one of the instruments from the list of needed equipment (RiverPro ADCP) the following duplication of costs related to HIF's evaluation costs is estimated as follows. This does not include Water Science Center staff recurring costs associated (1) field technician time to successfully interface unfamiliar equipment into existing data collection processes, (2) field technician training time to learn and practice new equipment operating procedures, (3) technician and supervisory time to correct erroneous data or estimate lost data resulting from unfamiliar equipment during records working and review process.

One-time HIF evaluation costs (for each instrument) to ensure equipment procured via competition meets applicable USGS specifications:

- 6 weeks project scientist time to design, oversee, analyze, and report evaluation (240 hours x $75/hour =$18,000)
- 4 weeks technician time to conduct laboratory and field work to complete evaluation (160 hours x $50/hour = $8,000)

- 2 weeks HIF staff time to introduce new stock item(s) into USGS One Stop ordering system and stock them in HIF warehouse (80 hours x $45/hour = $3,600)
- Total estimated one-time HIF cost: $18,000 + $8,000 + $3,600 = $29,600

Data from the stream gaging network are used for multiple purposes, including decision-making during flooding that can affect life and property. Consequently, the USGS may be face legal liability should a key station's data not be available or of compromised quality owing to unfamiliar or poorly performing network components. It is imperative that appropriate equipment be readily available to meet national network needs, and essential that it be available to meet urgent needs when flooding occurs. It is precisely during these times of high visibility and time-critical information flow that instrument and equipment problems associated with interoperability and technician training issues could be most damaging to the agency's reputation. It is a common practice for Water Science Centers to rely on technicians from surrounding states to assist with the increased work load of maintaining network stations during flooding. These technicians could be significantly hampered in their efforts if they were to encounter equipment that they had not worked with in the past. It is not straightforward to estimate overall time or dollar costs associated with these issues. However, under conditions where new information is requested and scrutinized by customer agencies as often as every five minutes in order to protect life and property, any time delays associated with network components have the potential to damage the agency's reputation, or worse, leave it legally liable for flood related damages.

The following table provides specific information about the unique characteristics of the instruments and equipment being procured.

Equipment Category	Part Numbers/Item Type	Unique Characteristics
RiverRay ADCP	HIF RivRay600	Profiling from 0.4 to 60 m. Phased array transducer and adaptive profiling automatically optimizes discharge measurement as it is being made. Phased array transducer profile minimizes flow disturbance allowing for increased resolution in the surface layer. Float (included with profiler) design allows for operation in high water velocities (up to 5 m/s) and standing waves.
RiverPro ADCP	HIF RivPro1200	Capable of operating in shallow stream environments (0.2 m to 25 m) and fits into float used for RiverRay ADCP. Adaptive profiling automatically optimizes discharge measurement as it is being made. Includes a 600 kHz 5th beam for measuring vertical velocities.
StreamPro ADCP	SI PADCPCOMP-UG4-MINUS IPAQ	Transducer can be float-mounted or hand-held. Unique design allows for operation in shallow stream environments (0.1 m minimum depth).
ChannelMaster ADCP	CM600-UG1, CM1200-UG2	A horizontally oriented ADCP capable of being installed on side of river or stream. SDI-12 communications; profiling range of 1 m to 300 m.
Tethered Boats for ADCP	RBSP-C, RBST, RBHL-KTA,	Boats readily adapt to all major ADCP units. High speed tethered boats allow operation in high turbulence

Deployment	HSRB-DPKTA, HSRB-Y	environments at surface velocities up to 20 feet per second.
Q-Boats	1800P and KTA, 1800PY	Remote control boats accept ADCP's from 2"-9" diameter. Maximum speed is 5 m/s (16 fps). Capable of operating at very low speeds down to 30 cm/s (1 ft/s). Includes dual steering mechanisms.

Additionally, Teledyne Oceanscience, formerly Oceanscience Inc., is the only known manufacturer for this type of floatation equipment. Previous solicitations including G13PS00083, G13PS00147, G13PS00150, G13PS00155, and G11PS00650 have been posted on FedConnect and FedBizOpps by the Reston Acquisition Branch attempting to obtain full and open competition for the same items to no avail. No other manufacturer is currently known that can offer equipment that meets the requirements for flotation devices that are compatible with existing ADCP's and can successfully operate over the range of water velocities as required for USGS measurements. Teledyne Oceanscience is the proprietary manufacturer of the equipment and they possess the technical knowledge and patents covering the designs of the equipment and any accessory items associated with that equipment.

7. Other Information. The HIF carries out its mission work by providing instruments and equipment to USGS technicians and scientists across the country. HIF procures these instruments and equipment in quantities sufficient to meet this national need. WSC's can then purchase or rent these items from HIF taking advantage of discounts associated with buying in quantity and receiving added value from the quality-assurance testing performed by HIF.

It is imperative that HIF be able to procure needed items in a timely and efficient fashion. The WSC's that HIF supports operate in an increasingly time-sensitive environment. A large portion of the hydrologic data collected by USGS is now made available to all interested parties in near real-time on a variety of USGS web pages. This capability has created a new set of demands and expectations for timely delivery of high quality data. WSC's rely on HIF to provide a ready supply of instruments and equipment to maintain this real-time stream of hydrologic data. Instrument failure, whether from routine life-cycle events, vandalism, or destruction by flooding or other acts of nature, must be corrected by WSC technicians quickly. In order to successfully meet this need, HIF must be able to procure, stock in its warehouse, and then supply to WSC's specific makes and models of equipment and instruments that will be required by its cooperators and partners.

Indefinite Delivery/Indefinite Quantity contracts provide the HIF a highly effective way of anticipating and meeting future equipment needs. HIF staff use the results of instrument evaluations, quality assurance testing data, requests from USGS field scientists, understanding of existing network infrastructure compatibility requirements, knowledge of USGS program goals and priorities, and historical performance data from the rental program to ascertain existing and future needs for specific instruments and equipment.

8. The Efforts to Identify Additional Sources Including the Market Research Conducted.

An important component of the HIF's overall mission is to actively seek out new vendors and products that meet USGS hydrologic data collection needs as well as identifying new and emerging technologies that may improve or expand agency efforts. Consequently, market research is conducted by HIF staff on a continuous basis. HIF employees maintain numerous contacts with vendor representatives (both sales and technical staff), and are often some of the first to learn of new products and planned innovations

from those vendors. HIF staff also provides information to vendors that help them ensure that new products will meet USGS accuracy and performance specifications. HIF staff attends industry trade shows and USGS national meetings annually where they can observe vendor demonstrations and discuss product capabilities. HIF welcomes vendors to visit our facility and provide presentations about, and demonstrations of, their products. Vendor visits to HIF are a frequent and regular occurrence. HIF staff also maintains a network of contacts with WSC technicians, professionals and managers. These personnel will often try a new device or manufacturer, and if they believe the equipment holds promise for USGS-wide usage, will contact HIF with a request to perform a rigorous equipment evaluation. The HIF conducts an annual process to seek input on new equipment evaluations. The process targets the Water Mission Area Discipline Offices (Surface Water, Ground Water, and Water Quality), National Program Managers, WSC staff, and it also offers vendors a mechanism to nominate their products for evaluation by HIF. Details of this process are on the public HIF website at: http://water.usgs.gov/hif/programs/instrumenteval/index.html.

9. Future Plans to Permit Competition. HIF will continue to competitively procure all equipment and instruments that are amenable to this form of acquisition. To promote competition, HIF continually tests new devices as they become available on the market. HIF routinely attends vendor conferences, trade shows, meetings, and conferences where vendors are present. HIF also attends local Business and Procurement Expositions in order to make vendors aware of USGS needs and business opportunities. HIF encourages vendors to develop and submit products that meet USGS requirements. In addition, HIF promotes visits from vendors to demonstrate and provide information about their products.

10. Recommendation and Certification from Program Office. Based on the above, I recommend this acquisition be conducted on a sole source basis and certify the above statements are accurate.

[redacted]

5-11-16
Date

11. Approval by the Contracting Officer in accordance with FAR 6.302-1 – only one responsible source:

[redacted]

Matthew Wathen, Contracting Officer

5/11/16
Date

Concurrence by the Chief of the Contracting Office > $25,000

STACEY DIAMOND

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Stacey Diamond, Chief, AG Reston

Date

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Jennifer Kelley, Bureau Competition Advocate

Date

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